

CLAIMS

1. An elongate hollow rail for a fabric covering for an architectural opening, such as a bottom rail for a fabric roller blind or a top or bottom rail for a roman shade, having an upper portion with a lengthwise upper opening in the top of the rail and being characterized by:
- a pair of lengthwise upper locking shoulders in the interior of the upper portion on walls on opposite widthwise sides of the upper opening; and/or
 - 10 - the upper locking shoulders being wedge-shaped and pointing inwardly of the upper portion and away from the upper opening; and/or
 - the wall on a first widthwise side of the bottom rail extending above the wall on the opposite second widthwise side of the bottom rail about the opening.
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2. The rail of claim 1 which also has a lower portion with a lengthwise lower opening in the bottom of the rail and is characterized by:
- a pair of lengthwise lower locking shoulders in the interior of the lower portion on walls on opposite widthwise sides of the lower opening; and/or
 - 20 - the lower locking shoulders being wedge-shaped and pointing inwardly of the lower portion and away from the lower opening; and/or
 - the wall on the second widthwise side of the bottom rail extending below the wall on the first widthwise side of the bottom rail about the lower opening.
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3. The rail of claim 2 which further has a continuous intermediate widthwise cross web, dividing the interior of the rail's profile into the upper and lower portions and is characterized by:
- 30 - the cross web being tilted widthwise; and
 - opposite widthwise sides of the cross web being parallel but not coplanar.

4. A method for attaching a fabric to a locking shoulder within an elongate hollow rail for a fabric covering for an architectural opening having a lengthwise upper opening in an upper portion of the rail, by the steps of:

- 5 - securing the rail to a stationary support structure with its
 lengthwise upper opening facing upwards;
- overlaying the rail and its upper opening and walls with a fabric
 having a stiff straight marginal edge, so that the stiff marginal
10 edge lies parallel and adjacent to a wall on a widthwise side of the
 rail and the remainder of the fabric extends widthwise away from
 the stiff marginal edge and the rail and its other wall;
- pushing the fabric into the upper opening by rolling the
 circumferential edge of a fabric inserting wheel against the top of
 the fabric and lengthwise along, and inwardly of, the upper
15 opening while allowing the stiff marginal edge to move widthwise
 towards the upper opening but preventing the remainder of the
 fabric from moving widthwise towards the upper opening; and
 then
- pushing the stiff marginal edge into the upper opening so that the
20 marginal edge engages the locking shoulder by again rolling the
 fabric inserting wheel against the top of the fabric and lengthwise
 along, and inwardly of, the upper opening while preventing the
 remainder of the fabric from moving widthwise towards the upper
 opening.

25 5. A method for attaching a fabric to a locking shoulder within an elongate hollow rail according to claim 1 for a fabric covering for an architectural opening having a lengthwise upper opening in an upper portion of the rail, by the steps of:

- 30 - securing the rail to a stationary support structure with its
 lengthwise upper opening facing upwards;
- overlaying the rail and its upper opening and walls with a fabric
 having a stiff straight marginal edge, so that the stiff marginal
 edge lies parallel and adjacent to a wall on a widthwise side of the

rail and the remainder of the fabric extends widthwise away from the stiff marginal edge and the rail and its other wall;

- pushing the fabric into the upper opening by rolling the circumferential edge of a fabric inserting wheel against the top of the fabric and lengthwise along, and inwardly of, the upper opening while allowing the stiff marginal edge to move widthwise towards the upper opening but preventing the remainder of the fabric from moving widthwise towards the upper opening; and then

- pushing the stiff marginal edge into the upper opening so that the marginal edge engages the locking shoulder by again rolling the fabric inserting wheel against the top of the fabric and lengthwise along, and inwardly of, the upper opening while preventing the remainder of the fabric from moving widthwise towards the upper opening.

6. The method of claim 4 for also covering one wall of the rail with the fabric where a lower portion of the rail has a lengthwise lower opening, by the steps of:

rotating the rail in a direction such that the stiff marginal edge of the fabric is not disengaged from the locking shoulder and until the lengthwise lower opening faces upwards, the fabric covers the one wall and overlies the rail and its lower opening and the other wall, and the remainder of the fabric extends widthwise away from the rail and the other wall; and then

- pushing the fabric into the lower opening to form a first fold in the lower portion by rolling the circumferential edge of the fabric inserting wheel against the top of the fabric and lengthwise along, and inwardly of, the lower opening while allowing the remainder of the fabric to move widthwise towards the lower opening; and then
- inserting, in a lengthwise direction, a elongate first spline into the first fold.

7. The method of claim 6 for covering the other wall of the rail with the fabric by:

- again rotating the rail in a direction such that the stiff marginal edge of the fabric is not disengaged from the locking shoulder and until its lengthwise upper opening faces upwards, the fabric covers the other wall and overlies the rail and its upper opening and the one wall, and the remainder of the fabric extends widthwise away from the rail and the one wall; and then
- pushing the fabric into the upper opening to form a second fold in the upper portion by rolling the circumferential edge of the fabric inserting wheel against the top of the fabric and lengthwise along, and inwardly of, the upper opening while allowing the remainder of the fabric to move widthwise towards the upper opening; and then
- inserting, in a lengthwise direction, a elongate second spline into the second fold.

8. The method of claim 4 wherein the circumferential edge of the wheel is repeatedly rolled along, and inwardly of, the upper and/or lower openings of the rail.

9. The method of claim 8 wherein the circumferential edge of the wheel is repeatedly rolled along, and inwardly of, the upper and/or lower openings of the rail in both lengthwise directions.

10. The method of claim 4 wherein a roller blind fabric is attached to an upper opening of the rail and a valance fabric is attached to a bottom opening of the rail.

11. A method of attaching a fabric to a hollow rail profile, the fabric comprising a sheet portion and a longitudinal end portion with a stiffening member attached thereto, the rail profile having a longitudinally extending fabric receiving opening out into a first or upper longitudinal extending fabric mounting

opening between a first profile wall and an opposite second profile wall, the first profile wall having a longitudinally extending inwardly directed fabric locking shoulder adjacent the opening, the method comprising the steps of,

- 5 -securing the profile into a stationary support structure with the first fabric mounting opening facing upwards,
- overlaying the profile and its first opening with the fabric, so that the stiffening member of the longitudinal end portion lies parallel and adjacent to the first profile wall and the sheet portion of the fabric extends horizontally away from the stiffening member over the profile
- 10 and the first fabric mounting opening,
- applying a fabric inserting wheel on a movable carriage for rolling the fabric into the first fabric mounting opening, and
- rolling the stiffening member into the first opening by at least one longitudinally directed rolling pass of the fabric inserting wheel.

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12. The method of claim 11 wherein the method, after the stiffening member is rolled into the first fabric mounting opening, further comprising the steps of:

- 20 - folding the sheet portion back over the profile and pulling it tight, thereby lodging the stiffening member under a first longitudinally extending locking flange extending inward from the first profile wall,
- releasing the profile rail and turning it over 360 degrees and re-securing it to the support structure, thus covering the profile with fabric, and locating the first fabric mounting opening facing upwards with the fabric extending over it,
- 25 - re-applying the fabric inserting wheel on a movable carriage for rolling a first spline fold of the fabric sheet portion into the first fabric mounting opening.

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13. The method of claim 12, further comprising the step of,

- 30 - inserting a splining member into the profile, such that the spline lies into the first spline fold that is rolled into the profile, the spline preventing the fabric from being pulled out through the fabric inserting opening.

14. The method of claim 11 wherein the stiffening member is formed *in situ* on the longitudinal end portion of the fabric material.

5 15. A method of mounting a fabric to a hollow rail profile, the fabric comprising a sheet portion and a longitudinal end portion with a stiffening member attached thereto, the rail profile comprising a first or upper longitudinal extending fabric mounting opening between a first profile wall and an opposite second profile wall and a second or lower longitudinal extending fabric mounting opening, the first and second fabric openings being separated by an intermediate web member, the method comprising the steps of,

-securing the profile into a stationary support structure with the first fabric mounting opening facing upwards,
-overlaying the profile and its first opening with the fabric, so that the stiffening member of the longitudinal end portion lies parallel and adjacent to the first profile wall and the sheet portion of the fabric extends horizontally away from the stiffening member over the profile and the first fabric mounting opening,
-applying a fabric inserting wheel on a movable carriage for rolling the fabric into the first fabric mounting opening, and
-rolling the stiffening member into the first opening by at least one longitudinally directed rolling pass of the fabric inserting wheel.

16. The method of claim 15 wherein the method after the stiffening member is rolled into the first fabric mounting opening, further comprising the steps of:

-- folding the sheet portion back over the profile and pulling it tight, thereby lodging the stiffening member under a first longitudinally extending locking flange extending inward from the first profile wall,
- releasing the profile rail and turning it over 180 degrees and re-securing it to the support structure, thus covering the first profile wall with fabric and locating the second fabric mounting opening facing upwards with the fabric extending over it,

- re-applying the fabric inserting wheel on a movable carriage for rolling a first spline fold of the fabric sheet portion into the second fabric mounting opening, and
- inserting a spline into the profile, such that the spline lies into the first spline fold that is rolled into the profile, the spline preventing the fabric from being pulled out through the fabric inserting opening.

17. The method of claim 15 wherein the method, after the stiffening member is rolled into the first fabric mounting opening, further comprises the steps of:

- folding the sheet portion back over the profile and pulling it tight, thereby logging the stiffening member under a first longitudinally extending locking flange extending inward from the first profile wall,
- releasing the profile rail and turning it over 360 degrees and re-securing it to the support structure, thus covering the profile with fabric, and locating the first fabric mounting opening facing upwards with the fabric extending over it,
- re-applying the fabric inserting wheel on a movable carriage for rolling a first spline fold of the fabric sheet portion into the first fabric mounting opening, and
- inserting a spline into the profile, such that the spline lies into the first spline fold that is rolled into the profile, the spline preventing the fabric from being pulled out through the fabric inserting opening.

18. The method of claim 17 wherein a second or valance fabric is mounted to the profile, the valance fabric comprising a valance sheet and longitudinal extending valance end portion with a valance stiffening edge, by the following additional method steps;

- locating and securing the profile rail in the support structure such that the second fabric mounting opening which covered by fabric faces upward,
- overlaying the profile and its covered second fabric mounting opening with the valance fabric, so that the valance stiffening member of the longitudinal end portion lies parallel and adjacent to

the first profile wall and the sheet portion of the fabric extends horizontally away from the stiffening member over the profile and the first fabric mounting opening,

- re-applying the fabric inserting wheel on the movable carriage for rolling the valance stiffening member into the second fabric mounting opening
- and at the same time for rolling a second spline fold of the fabric sheet portion into the second fabric mounting opening.

10 19. The method of claim 15 wherein a second or valance fabric is mounted to the profile, the valance fabric comprising a valance sheet and longitudinal extending valance end portion with a valance stiffening edge, by the following additional method steps;

- locating and securing the profile rail in the support structure such that the second fabric mounting opening faces upward,
- overlaying the profile and its second fabric mounting opening with the valance fabric, so that the valance stiffening member of the longitudinal end portion lies parallel and adjacent to the second profile wall and the valance sheet extends horizontally away from the valance stiffening member over the profile and the second fabric mounting opening,
- re-applying the fabric inserting wheel on the movable carriage for rolling the valance stiffening member into the second fabric mounting opening.

20 20. The method of claim 15 wherein a second or valance fabric is mounted to the profile, the valance fabric comprising a valance sheet and longitudinal extending valance end portion with a valance stiffening edge, by the following additional method steps;

- locating and securing the profile rail in the support structure such that the second fabric mounting opening faces upward,
- overlaying the profile and its second fabric mounting opening with the valance fabric, so that the valance stiffening member of the

longitudinal end portion lies parallel and adjacent to the second profile wall and the valance sheet extends horizontally away from the valance stiffening member over the profile and the second fabric mounting opening,

- 5 - re-applying the fabric inserting wheel on the movable carriage for rolling the valance stiffening member into the second fabric mounting opening;
- folding the valance sheet portion back over the profile and pulling it tight, thereby logging the valance stiffening member under a second
- 10 longitudinally extending locking flange extending inward from the second profile wall,
- releasing the profile rail and turning it over 180 degrees and re-securing it to the support structure, thus covering the second profile wall with valance fabric and locating the first fabric mounting opening
- 15 facing upwards with the valance fabric extending over it,
- re-applying the fabric inserting wheel on a movable carriage for rolling a second spline fold of valance fabric sheet portion into the first fabric mounting opening, and
- inserting a valance spline into the profile, such that the valance spline
- 20 lies into the second spline fold that is rolled into the profile, the valance spline preventing the valance fabric from being pulled out through the first fabric inserting opening.

21. A method of mounting a fabric to a hollow rail profile, the fabric
- 25 comprising a sheet portion and a longitudinal end portion, the rail profile comprising a first or upper longitudinal extending fabric mounting opening between a first profile wall and an opposite second profile wall and a second or lower longitudinal extending fabric mounting opening, the first and second fabric openings being separated by an intermediate web member, the method
- 30 comprising the steps of,
- securing the profile into a stationary support structure with the first fabric mounting opening facing upwards,

-overlaying the profile and its first opening with the fabric, so that the end portion lies parallel and adjacent to the first profile wall and the sheet portion of the fabric extends horizontally away from the end portion over the profile and the first fabric mounting opening,

5 -applying a fabric inserting wheel on a movable carriage for rolling a first fabric fold into the first fabric mounting opening, and

- inserting a spline into the profile, such that the spline lies into the first fabric fold that is rolled into the profile, the spline preventing the fabric from being pulled out through the fabric inserting opening,

10 - releasing the profile rail and turning it over 180 degrees and re-securing it to the support structure, thus covering the first profile wall with fabric and locating the second fabric mounting opening facing upwards with the fabric extending over it,

15 - re-applying the fabric inserting wheel on a movable carriage for rolling a second spline fold of the fabric sheet portion into the second fabric mounting opening, and

20 - inserting a second spline into the profile, such that the spline lies into the second spline fold that is rolled into the profile, the spline preventing the fabric from being pulled out through the fabric inserting opening.

22. A rail profile, to which a fabric can be mounted using the method of claim 11, wherein the rail profile comprises a body having an interior longitudinally extending fabric receiving space opening out into a first or upper longitudinal extending fabric mounting entrance opening between a first profile wall and an
25 opposite second profile wall, the first profile wall having a longitudinally extending inwardly directed fabric locking shoulder adjacent the opening; and characterised in that:

30 - the width of the elongated opening is bigger than the lateral width of the wheel for rolling in the fabric;

- the fabric receiving space extends sufficiently in a generally downward direction for accommodating the wheel in its action of rolling in the fabric; and

- the lateral inwardly extending locking shoulder is sufficiently wide to prevent the stiffening member on the fabric from being pulled away from the locking shoulder.

- 5 23. An apparatus for attaching a fabric to an elongate hollow rail for a fabric covering for an architectural opening, such as a bottom rail for a fabric roller blind, comprising means for carrying out the steps of the method of claim 4.